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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Gerhard Schotz

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EXAMINER

HOOVER, MATTHEW

ART UNIT

PAPER NUMBER

4122

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/552,539	Applicant(s) SCHOTZ ET AL.	
	Examiner MATTHEW HOOVER	Art Unit 4122	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 April 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) 6-10 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 October 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>10/11/05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 1-5, drawn to a method for producing a preform for optical fibers.

Group II, claim(s) 6-10, drawn to a method for producing a preform for optical fibers.

2. The inventions listed as Groups I and II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical feature for the following reasons: Groups I and II lack unity of invention because even though the inventions of these groups require the technical feature of a process by which a glass tube preform is produced by heating a silicon compound with a plasma burner. The production of the oxidation process is deposited on a support in the presence of fluorine; this technical feature is not a special technical feature as it does not make a contribution over the prior art in view of Rau et al (US 4162908). Rau et al (US 4162908) teaches that a silicon compound is heated by a plasma burner and the oxidized product of said heating is deposited on a support in the presence of fluorine. Therefore, the special technical feature lacks novelty as evidenced by Rau et al (US 4162908).

3. A telephone call was made to Andrew Tiajolloff on 2/23/09 to request an oral election to the above restriction requirement, but did not result in an election being made.

Applicant is advised that the reply to this requirement to be complete must include (i) an election of a species or invention to be examined even though the requirement may be traversed (37 CFR 1.143) and (ii) identification of the claims encompassing the elected invention.

The election of an invention or species may be made with or without traverse. To preserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse.

4. Applicant's election without traverse of claims 1-5 in the reply filed on 4/3/09 is acknowledged.

5. Claims 6-10 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected apparatus, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 4/30/09.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rau et al (US 4162908) in view of Kao (US 4243298) and in further view of Ohga et al (US 5474589) Presby (US 4307296), and Encyclopedia Britannica.

Regarding claim 1, Rau teaches a method for producing glass where a silicon compound is heated by a plasma burner and oxidized (column 1 lines 64-68 and column 2 lines 1-2). The process is done in an oxygen environment, which produces silicon oxide (column 1 lines 24-27). The silicon compound is then oxidized in the presence of fluorine and deposited on the refractory support (column 2 lines 23-30). the oxidizing of a silicon compound in the presence of fluorine creates a fluorine doped silicon compound (column 1 lines 21-28). Rau also teaches that the shape of the refractory support is a cylinder, which is a rod (column 2 lines 32-41). The rod can rotate during the depositing process doing so along its longitudinal axis (column 3 line 68, column 4 lines 1-3 and figure 2).

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Regarding claim 1, Rau does not teach that the silicon oxidized product is deposited in a layer. It also does not teach the ultraviolet wavelength or the intensity of the plasma flame.

Regarding claim 1, Kao teaches the process of creating an optical preform fiber where several layers of cladding material are formed over a glass rod (column 3 lines 6-15).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the method of producing a preform for optical fibers in Rau with the layer depositing from Kao. The rationale to do so would have been the motivation provided by the teaching of Kao that to do so would predictably provide improved optical communication and stronger fibers (column 2 lines 23-39).

Regarding claim 1, Ohga teaches that a fluorine doped quartz glass has absorption in the range of 155 to 400nm (column 1 lines 63-67, column 2 lines 1-4). The addition of silicon and oxygen change the absorption wavelength to 165 to 250nm (column 2 lines 5-10), specifically 215nm (column 2 lines 10-14).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the method of producing a preform for optical fibers in Rau and Kao with the wavelength values from Ohga. The rationale to do so would have been the motivation provided by the teaching of Presby that to do so would predictably allow the user to measure parameters needed in order to maintain and achieve good transmission characteristics (column 1 lines 10-24). Presby states that a dopant will

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fluoresce if applied with its specific ultraviolet wavelength (column 2 lines 42-52). By applying the wavelength disclosed in Ohga, Presby states that the fluorescence allows the user to measure parameters such as diameter of the core, refractive index and cladding. These parameters specify the transmission characteristics of the optical fiber, so by applying the specific wavelength of uv radiation, (depending on the dopant used), one can monitored in order to achieve good transmission characteristics (column 1 lines 10-24 and column 2 lines 32-52).

Regarding claims 1 and 2, Encyclopedia Britannica teaches that the light intensity is related to the wavelength of the light.

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the method of producing a preform for optical fibers in Rau, Kao, Ohga and Presby with the light intensity teaching from Encyclopedia Britannica. The rationale to do so would have been the motivation provided by the teaching of Presby that to do so would predictably allow the user to measure parameters needed in order to maintain and achieve good transmission characteristics (column 1 lines 10-24 and column 2 lines 32-52). Presby discloses above that a certain wavelength of light is needed to produce fluorescence so one can achieve these good transmission characteristics. Since intensity is related to wavelength it can be seen that a certain intensity of light would also be needed to cause the desired characteristics. The general conditions of the claim are disclosed in the prior art, therefore it is not inventive to discover the optimum or workable ranges by routine experimentation.” In re Aller, 220

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F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). Regarding claim 2, the intensity values are just further optimization ranges. See *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

9. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rau et al (US 4162908) in view of Kao (US 4243298) and in further view of Ohga et al (US 5474589), Presby (US 4307296), Encyclopedia Britannica and Izawa (US 4062665).

The teachings of Rau, Kao, Ohga, Presby and Encyclopedia Britannica are disclosed above in the rejection of claims 1 and 2. Regarding claim 3, Rau teaches that the process is conducted between 1850C and 2000C (column 3 lines 3-8), preferably at 1900C (column 4 lines 16-19).

Neither Rau, Kao, Ohga, Presby nor Encyclopedia Britannica teaches the outer diameter of the core glass.

Izawa teaches that a starting member may be a member having a support rod attached to the center of a quartz disk about 20 to 50 mm in diameter (column 6 lines 41-44).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the method of producing a preform for optical fibers in Rau, Kao, Ohga, Presby and Encyclopedia Britannica with the diameter from Izawa. The rationale to do so would have been the motivation provided by the teaching of Izawa that shows that the starting member may be a quartz rod as well as the starting member disclosed above (column 6 lines 41-44). Rau states that a quartz rod can be used as a starting

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member as well (column 2 lines 33-35). Therefore, the two supports mentioned in Izawa are substitutes for each other and the dimensions listed for one can be used for the other.

10. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rau et al (US 4162908) in view of Kao (US 4243298) and in further view of Ohga et al (US 5474589), Presby (US 4307296), Encyclopedia Britannica, Izawa (US 4062665) and French (US 4049413).

The teachings of Rau, Kao, Ohga, Presby, Encyclopedia Britannica and Izawa are disclosed above in the rejection of claims 1-3.

Neither Rau, Kao, Ohga, Presby, Encyclopedia Britannica nor Izawa teach the outer diameter of the core glass is greater than 60mm.

French teaches that as radius increases, the index of refraction decreases (column 4 lines 37-39).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the method of producing a preform for optical fibers in Rau, Kao, Ohga, Presby, Encyclopedia Britannica and Izawa with the radius relationship from French. The rationale to do so would have been the motivation provided by the teaching of French that to do so would predictably show that changing the diameter produces a change in the index of refraction (column 2 lines 20-30). French shows that the diameter and index of refraction of related to each other. Therefore if one wanted to produce an optical fiber with a certain index of refraction one would change the size of the diameter.

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Optimizing the diameter to produce the specific optic fiber is not patentable. See *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

11. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rau et al (US 4162908) in view of Kao (US 4243298) and in further view of Ohga et al (US 5474589), Presby (US 4307296), Encyclopedia Britannica and Booth (US 5168541).

The teachings of Rau, Kao, Ohga, Presby and Encyclopedia Britannica are disclosed above in the rejection of claims 1-2.

Neither Rau, Kao, Ohga, Presby nor Encyclopedia Britannica teaches that the layer thickness is not more than 0.05um.

Booth teaches an optical member that is formed by adding multiple layers of silicon oxidized products with a thickness between 10 to 75nm (column 4 lines 52-68, column 5 lines 1-25), preferably between 10-50nm (column 5 lines 24-25).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the method of producing a preform for optical fibers in Rau, Kao, Ohga, Presby and Encyclopedia Britannica with the thickness layer from Booth. The rationale to do so would have been the motivation provided by the teaching of Booth that to do so would predictably create inferior barrier properties. According to Booth, greater amounts of silicon dioxide detract from barrier properties (column 5 lines 17-19). Furthermore, as the thickness increases, the cost for production increases as well (column 5 lines 6-9). Therefore it is preferred to keep cost down and have a small thickness.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Guerder et al (US 4221825, fluorine doped silica fibers), Kawachi et al (US 4345928, fabrication method of optical fibers), Edahiro et al (US 4402720, process for preparing glass preform for optical fiber).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MATTHEW HOOVER whose telephone number is (571)270-7663. The examiner can normally be reached on Monday-Friday, 8am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Milton Cano can be reached on (571)272-1398. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/MH/
Examiner AU4122

/Timothy J. Kugel/
Primary Examiner, Art Unit 1796